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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/635,690	08/05/2003	Li-Wen Chen	52719.00045	8347

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EXAMINER	
PYO, MONICA M	

ART UNIT	PAPER NUMBER
2161	

DATE MAILED: 10/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/635,690	CHEN, LI-WEN	
	Examiner	Art Unit	
	Monica M. Pyo	2161	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 June 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 June 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/30/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is responsive to the Amendment filed 6/30/2006.

2. Claims 1-22 are currently pending in this application. Claims 1, 18, 19, 21 and 22 are independent claims. In the Amendment filed 6/30/2006, no claims were amended. This action is made Final.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 6/30/2006 was filed.

Drawings

4. The drawing received on 6/30/2006. The changes are accepted and therefore, the drawing objections made in a prior Office Action are withdrawn.

Double Patenting

5. The Double Patenting rejection made in the prior office action is withdrawn since the co-pending Application No. 10/017,701 has been abandoned.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 1-5, 10, 12-19 and 21-23 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 7,010,564 issued to Morimoto et al. (hereafter Morimoto) in view of U.S. Patent No. 6,732,120 issued to Du (hereafter Du).

Regarding claim 1, 21 and 22, Morimoto discloses a method, comprising:

- **receiving a first schema database comprising information having at least one of a spatial component and a remaining component,** as a database in which data are stored associated with spatial information (Morimoto: col. 4, lns. 40-61; col. 5, lns. 25-28);
- **performing data analysis thereon to determine a geospatial pattern based upon the spatial component,** as a geographical information (Morimoto: col. 4, lns. 40-67; col. 5, lns. 1-13);
- **aggregating data of the database into one or more groupings in accordance,** as a spatial data mining and aggregations (Morimoto: col. 3, lns. 54-65; col. 4, lns. 40-67; col. 5, lns. 1-13); and
- **n-dimensional presentation,** as a two-dimensional association rule (Morimoto: col. 3, lns. 63-67)

Morimoto do not disclose:

- **storing the geospatial pattern as meta data;**
- **displaying one or more indicators associated with the one or more groupings.**

However, Du disclose:

- **storing the geospatial pattern as meta data,** as the geographic information being stored (Du: col. 6, lns. 40-54; col. 7, lns. 15-38; tbl. SCHEMA 1);
- **displaying one or more indicators associated with the one or more groupings,** as a group display area using list names of collections (Du: col. 5, lns. 1-28).

It would have been obvious to a person with ordinary skill in the art at the time of invention to apply the displaying geographical data method of Du into the spatial data mining of

Morimoto. Skilled artisan would have been motivated to incorporate the Du's teaching of storing the spatial data as metadata in the Morimoto's teaching of spatial data mining to store spatial data in a narrowed grouped tables (Du: col. 1, lns. 25-45).

Claims 21 and 22 are also rejected based upon the same reasoning as Claim 1.

Regarding claim 2, Morimoto and Du disclose the method further comprising:

analyzing at least a portion of at least one dataset included by the database to determine at least one relationship among the groupings (Du: col. 6, lns. 65-67; col. 7, lns. 1-14; fig.3); and

displaying one or more indicators to denote the relationship(s) among the one or more groupings (Du: col. 7, lns. 1-20; fig. 3).

Regarding claim 3, Morimoto and Du disclose the method further comprising:

forming a virtual schema meta model based upon at least a portion of at least one dataset included by the database (Du: col. 7, lns. 14-51; col. 3, tbl. SCHEMA 1; fig. 3); and

wherein the aggregating data of the database comprises aggregating data of the database into one or more groupings in accordance with the virtual schema (Morimoto: col. 4, lns. 40-67; col. 5, lns. 1-13) & (Du: col. 7, lns. 39-51; col. 7-8, 4 tbls . Schema of Table).

Regarding claim 4, Morimoto and Du disclose the method further comprising:

receiving an input indicating a criterion (Morimoto: col. 4, lns. 40-61);

storing the input as meta data (Morimoto: col. 4, lns. 40-61) & (Du: col. 6, lns. 40-54; fig. 3); and

aggregating data of the database into new groupings in accordance with the meta data (Morimoto: col. 4, lns. 40-67; col. 5, lns. 1-13) & (Du: col. 7, lns. 39-51; col. 7, tbl. SCHEMA 1).

Regarding claim 5, Morimoto and Du disclose the method wherein the input comprises at least one of:

an input from a user (Morimoto: col. 6, lns. 1-18; fig.2).

Regarding claim 10, Morimoto and Du disclose the method wherein meta data is stored according to a hierarchy (Du: col. 6, lns. 40-54; fig. 3).

Regarding claim 12, Morimoto and Du disclose the method wherein data analysis further comprises at least one of

data mining; spatial relationship data analysis (Morimoto: col. 3, lns. 53-67; col. 4, lns. 1-7).

Regarding claim 13, Morimoto and Du disclose the method wherein aggregating the groupings based upon the spatial-object meta data comprises:

checking whether data points fall within a common region , and if so, aggregating data represented by the data points (Du: col. 6, lns. 55-65; fig. 3).

Regarding claim 14, Morimoto and Du disclose the method further comprising:

receiving a second input indicating one or more redefined regions (Morimoto: col. 4, lns. 40-61);

storing the second input as a redefined spatial-object meta data (Morimoto: col. 4, lns. 62-67; col. 5, lns. 1-13) & (Du: col. 6, lns. 40-54; fig. 3); and

aggregating into new groupings based upon the spatial-object meta data (Morimoto: col. 4, lns. 40-67; col. 5, lns. 1-13) & (Du: col. 6, lns. 40- 54; fig. 3).

Regarding claim 15, Morimoto and Du disclose the method further comprising:

redefining the virtual schema based upon the spatial-object meta data (Du: col. 8, lns. 35, comprising:

- receiving a second input indicating a criteria (Du: col. 9, lns. 45-57; col. 9, tbl. "Non-Spatial Attributes");
- aggregating data of the database into one or more new groupings in accordance with the redefined virtual schema and the second input indicating the criteria (Du: col. 9, lns. 45-57; col. 9, tbl. "Non-Spatial Attributes"); and
- displaying one or more indicators associated with the one or more new groupings on an n-dimensional presentation (Morimoto: col. 3, lns. 53-57) & (Du: col. 5, lns. 1-28).

Regarding claim 16, Morimoto and Du disclose the method further comprising:

receiving a second input indicating a relationship between a first data point and a second data point on the n-dimensional presentation (Morimoto: col. 3, lns. 53-57; col. 4, lns. 40-61);

reflecting the relationship in the virtual schema (Du: col. 3, lns. 65-67; col. 4, lns. 1-13; fig. 3);

aggregating data of the database into one or more new groupings in accordance with the virtual schema (Morimoto: col. 4, lns. 40-67; col. 5, lns. 1-13) & (Du: col. 7, lns. 39-51; col. 7-8, 4 tbls . Schema of Table); and

displaying one or more indicators associated with the one or more new groupings on an n-dimensional presentation (Morimoto: col. 3, lns. 53-57) & (Du: col. 5, lns. 1-28).

Regarding claim 17, Morimoto and Du disclose the method further comprising:

receiving a second database (Morimoto: col. 4, lns. 40-61);

forming a virtual schema including at least a portion of a dataset included within at least one of the first database and the second database (Du: col. 7, lns. 14-51; col. 3, tbl. SCHEMA 1; fig. 3);

receiving a first input indicating a criteria (Morimoto: col. 4, lns. 40-61);

aggregating data of at least one of the first database and the second database into one or more groupings in accordance with the virtual schema and the first input indicating the criteria (Du: col. 9, lns. 45-57; col. 9, tbl. "Non-Spatial Attributes"); and

displaying one or more indicators associated with the one or more groupings on an n-dimensional presentation (Morimoto: col. 3, lns. 53-57) & (Du: col. 5, lns. 1-28).

Regarding claim 18, Morimoto discloses the method comprising:

- **receiving a first schema database comprising information having at least one of a spatial component and a remaining component,** as a database in which data are stored associated with spatial information (Morimoto: col. 4, lns. 40-61; col. 5, lns. 25-28);
- **performing data analysis thereon to determine a geospatial pattern based upon the spatial component,** as a geographical information (Morimoto: col. 4, lns. 40-67; col. 5, lns. 1-13);
- **aggregating data of the database into one or more groupings in accordance with the virtual schema and the meta data,** as a spatial data mining and aggregations (Morimoto: col. 3, lns. 54-65; col. 4, lns. 40-67; col. 5, lns. 1-13); and
- **n-dimensional presentation,** as a two-dimensional association rule (Morimoto: col. 3, lns. 63-67); and

Morimoto does not explicitly disclose:

- **storing the geospatial pattern as meta data;**
- **forming a virtual schema including at least a portion of a dataset included within the first database;**
- **displaying one or more indicators associated with the one or more groupings**

However, Du disclose:

- **storing the geospatial pattern as meta data,** as the geographic information being stored (Du: col. 6, lns. 40-54; fig. 3);

- **forming a virtual schema including at least a portion of a dataset included within the first database,** as tables are storing the spatial objects in a conventional 2D RDB-based GIS system (Du: col. 7, lns. 14-51; col. 3, tbl. SCHEMA 1; fig. 3);
- **displaying one or more indicators associated with the one or more groupings,** as a group display area using list names of collections (Du: col. 5, lns. 1-28).

It would have been obvious to a person with ordinary skill in the art at the time of invention to apply the displaying geographical data method of Du into the spatial data mining of Morimoto. Skilled artisan would have been motivated to incorporate the Du's teaching of storing the spatial data as metadata in the Morimoto's teaching of spatial data mining to store spatial data in a narrowed grouped tables (Du: col. 1, lns. 25-45).

Regarding claim 19, Morimoto disclose a system, comprising:

- **including at least a portion of data input from a source, and generates mapping rules controlling data movement into a data warehouse,** as a database in which data are stored associated with spatial information (Morimoto: col. 4, lns. 40-61);
- **a region checker,** as a regional extraction engine (Morimoto: col. 6, lns. 1-18);
- **a data analyzer,** as a geographical information being analyzed (Morimoto: col. 4, lns. 40-67); and
- **an n-dimensional presentation,** as a two-dimensional association rule (Morimoto: col. 3, lns. 63-67)

Morimoto do not disclose:

- **a schema builder that generates one or more virtual schemas;**
- **a metadata repository operative to hold the virtual schemas and mapping rules;**
- **wherein the data analyzer is operative to create at least one mapping rule based upon analysis of information in the data warehouse.**

However, Du disclose:

- **a schema builder that generates one or more virtual schemas,** as tables are storing the spatial objects in a conventional 2D RDB-based GIS system (Du: col. 7, lns. 14-51; col. 8, lns. 35-67; tbl. SCHEMA);
- **a metadata repository operative to hold the virtual schemas and mapping rules**, as the geographic information being stored (Du: col. 6, lns. 40-64);
- **wherein the data analyzer is operative to create at least one mapping rule based upon analysis of information in the data warehouse**, as the interrelationship between adjacent levels of maps within the hierarchy allows a user to manipulate the display to show the data (Du: col. 6, lns. 65-col. 7, lns. 14; fig.3).

It would have been obvious to a person with ordinary skill in the art at the time of invention to apply the displaying geographical data method of Du into the spatial data mining of Morimoto. Skilled artisan would have been motivated to incorporate the Du's teaching of storing the spatial data as metadata in the Morimoto's teaching of spatial data mining to store spatial data in a narrowed grouped tables (Du: col. 1, lns. 25-45).

Regarding claim 23, Morimoto and Du disclose: a customer data analysis report produced (Morimoto: col. 6, lns. 1-18; fig. 2).

8. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morimoto and Du in view of an Non-Patent Literature published by Intelligent Enterprise Magazine, "Seeking Spatial Intelligence" published on January 20, 2000, volume 3, Number 2 by Michael L. Gonzales (hereafter Gonzales).

Regarding claim 6, Morimoto and Du do not disclose the method wherein:
the defined area comprises at least one of:

a zip code,

an area code,

a census tract,

a Metropolitan Statistical Area (MSA)

a nation state,

a state,

a county,

a municipality,

a plat;

a voting district;

a precinct;

a latitude, and

a longitude.

However, Gonzales disclose the method wherein the defined area comprises at least one of:

- a zip code,
- an area code,
- a census tract,
- a Metropolitan Statistical Area (MSA) (Gonzales: pg. 1, table 1),

It would have been obvious to a person with ordinary skill in the art at the time of invention to apply the Geographic Information System (GIS) of Gonzales in the displaying geographical data method of Du and in the spatial data mining of Morimoto. Skilled artisan would have been motivated to incorporate the Gonzales's teaching of understanding information below the layer of numeric data in the Du's teaching of storing the spatial data as metadata and in the Morimoto's teaching of spatial data mining to include a defined area as a part of spatial data (Gonzales: pg. 3, Follow the Leader [03]).

Regarding claim 7, Morimoto and Du and Gozales disclose the method wherein:

the derivation based upon one or more objects on the n-dimensional presentation comprises at least one of:

a region within a specified distance of a power line (Gonzales: pg. 1, table 1).

9. Claims 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morimoto and Du in view of an Non-Patent Literature published by Geospatial solutions, "Coordinates of a Killer" published November 1, 2001 by Leipnik et al. (hereafter Leipnik).

Regarding claim 8, Morimoto and Du do not disclose the method wherein the result of a computation comprises:

computing an animal home range, the home range providing a region defined by activities of a target;

defining within the region a first ellipse; and

defining within the region a second ellipse approximately orthogonal to the first ellipse; wherein

an area defined by intersection of the first ellipse and the second ellipse provides a greatest probability of finding the target.

However, Leipnik disclose: wherein the result of a computation comprises:

computing an animal home range, the home range providing a region defined by activities of a target (Leipnik: pg. 2, Home range, [01]);

defining within the region a first ellipse (Leipnik: pg. 2, Home range, [02]); and

defining within the region a second ellipse approximately orthogonal to the first ellipse (Leipnik: pg. 3, Home rage, [03]; fig. 3); wherein

an area defined by intersection of the first ellipse and the second ellipse provides a greatest probability of finding the target (Leipnik: pg. 3, Home rage, [03]; fig. 3).

It would have been obvious to a person with ordinary skill in the art at the time of invention to apply the range use of Geographic Information System (GIS) of Leipnik in the displaying geographical data method of Du and in the spatial data mining of Morimoto. Skilled artisan would have been motivated to incorporate the Leipnik's teaching of narrowing the target range in the Du's teaching of storing the spatial data as metadata and in the Morimoto's teaching of spatial data mining to use the spatial data to narrow the target's location (Leipnik: pg. 2, Home range, [02]).

Regarding claim 9, Morimoto and Du and Leipnik disclose the method wherein: the target comprises at least one of:

a suspect, who perpetrated criminal acts defined by the data,

a customer, who completed transactions in shops defined by the data (Leipnik: pgs. 2-3, Home ragne, [02-03]; fig.3),

10. Claims 11 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morimoto and Du in view of U.S. Patent No. 6,480,842 issued to Agassi et al. (hereafter Agassi).

Regarding claim 11, Morimoto and Du disclose the method further comprising:

creating report for at least a portion of a dataset in the data warehouse (Morimoto: col. 6, lns. 1-18; fig. 2);

reducing the data cube report by aggregation to at least one tuple, comprising a GIS-object and a data point (Du: col. 7, lns. 39-51);

storing the GIS-object as metadata (Du: col. 7, lns. 15-38, tbl. SCHEMA 1); and

aggregating like tuples for display on the n-dimensional presentation (Du: col. 4, lns. 52-67; fig. 3).

Morimoto and Du do not disclose:

- a data cube

However, Agassi disclose:

- a data cube (Agassi: col. 3, lns. 9-21).

It would have been obvious to a person with ordinary skill in the art at the time of invention to apply the Online Analysis Processing (OLAP) database structure of Agassi in the displaying geographical data method of Du and in the spatial data mining of Morimoto. Skilled artisan would have been motivated to incorporate the Agassi's OLAP database structure in the Du's teaching of storing the spatial data as metadata and in the Morimoto's teaching of spatial data mining to allow an interactive response to a query (Agassi: col. 1, lns. 35-47).

Regarding claim 20, Morimoto and Du do not disclose the system wherein the source comprises at least one of a plurality of on line transaction processing (OLTP) databases.

However, Agassi disclose: wherein the source comprises at least one of a plurality of on line transaction processing (OLTP) databases (Agassi: col. 2, lns. 60-67; col. 3, lns. 1-8).

It would have been obvious to a person with ordinary skill in the art at the time of invention to apply the Online Analysis Processing (OLAP) database structure of Agassi in the displaying geographical data method of Du and in the spatial data mining of Morimoto. Skilled artisan would have been motivated to incorporate the Agassi's OLAP database structure in the

Du's teaching of storing the spatial data as metadata and in the Morimoto's teaching of spatial data mining to allow an interactive response to a query (Agassi: col. 1, lns. 35-47).

Response to Arguments

11. Applicant's arguments filed 6/30/2006 have been fully considered but they are not persuasive.

Applicant argues that Morimoto and Du fail to disclose the limitation of "storing the geospatial pattern as meta data." However, the Examiner disagrees. As stated above in the rejection, Du discloses in col. 6, lns. 40-54; col. 7, lns. 15-38 and shows in table SCHEMA 1 that spatial data being stored in SCHEMA table. Therefore, Morimoto and Du read on the broadly claimed limitation.

Applicant also argues that Morimoto and Du fails to disclose the limitation of "displaying one or more indicators associated with the one or more groupings on an n-dimensional presentation." However, the Examiner disagrees. Du teaches the feature of group displaying (i.e., shopping centre, school, golf courses, etc.) in col. 5, lns. 1-28. Therefore, the Du's teaching of displaying groups is valid to read on the claimed limitation of "displaying one or more indicators associated with the one or more groupings on an n-dimensional presentation."

Applicant argues that references fail to remedy the faults of Morimoto and Du. However, the Examiner disagrees because it should be noted that the rejections regarding these claims are made under 35 U.S.C. 103(a) and the test for obviousness is whether the combined teaching of the references would have suggested the combination to one of ordinary skill in the art. Although Morimoto does not disclose all of the limitations, the feature not disclosed by

Morimoto is disclosed by other references. One cannot show non-obviousness by attacking references individually where, as here, the rejections are based on a combination of references.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica M. Pyo whose telephone number is 571-272-8192. The examiner can normally be reached on Mon-Fri 6:30 - 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on 571-272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Monica M Pyo
Examiner
Art Unit 2161

mp
9/30/2006

Leslie Wong
Primary Examiner